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Commentary: To replace or not to replace? The big question and how to find the answer.

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Please submit your article's Central Message here. The text box will limit you to 200 characters, spaces included **NOTE: This MUST ALSO be included in the manuscript file, after the title page.	Rheumatic mitral valves can be repaired, but the selection of the repairable valves must be carefully planned and every detail counts.
Please submit the abbreviated legend for your Central Picture . The text box will limit you to 90 characters, spaces included **NOTE: This MUST ALSO be included in the manuscript file, after the title page.	S. OO (left) and V.D. Bruno (right)

Commentary: To replace or not to replace? The big question and how to find the answer.

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Conflict of interest statement

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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In the latest issue of the JTCVS, Brescia and colleagues¹ have approached a delicate subject: replace or repair a rheumatic mitral valve (MV)? For degenerative mitral valve disease, there is large evidence and overall consensus on the fact that valve repair is better than replacement. Certainly, every modern mitral valve surgeon approaches a degenerative MV regurgitation with a repair in mind and would try to avoid a replacement in most of these valves. However, the treatment for rheumatic mitral valve (RMV) disease differs according to the pathology of the valve and even the geographical regions. Starting from this background, the authors have retrospectively analysed their data on RMV comparing two different eras with a primary composite outcome of death, reoperation and severe valve dysfunction¹. Their hypothesis is that a change in approach of the anterior leaflet (AL) had a significant impact on the results: indeed around 2009 their surgical approach to RMV changed and included a systematic echocardiographic and intraoperative assessment specifically dedicated to the AL. This new approach altered the operative decision-making process leading to a lower threshold for replacement when the AL was rigid or calcified (70% repair rate in Era 1 vs 33% in Era 2)¹. This process was successful as the operative Era 1 was the strongest independent predictor of the primary outcome. These results are very important and confirm a very recent propensity matched report that support the evidence that rheumatic mitral valve repair in selected patients is superior to mitral valve replacement². The study from Brescia et al¹, although not representing the largest series of RMV, clearly defines an effective method of planning the surgical strategy that is not influenced by the presence and degree of mitral valve regurgitation alone. Similar to previous articles³, there was no significant difference in mortality between mitral valve repair group and replacement group, though it has to be acknowledged that vast majority of the reoperations were related to repairs. This tells us that repairing rheumatic valves could be difficult in certain cases and that is why we see a slight benefit for the replacement group in terms of composite outcome, although not statistically significant. It has to be recognised that some limitations are present in this study. One important limit of the study is related to the longer follow up of Era 1 that might have affected the number of events simply because the patients of this Era had a longer period of exposure. Moreover, one factor impacting on the primary outcome was the presence of preoperative atrial fibrillation and we can see that Era 1 had a significant higher number of patients with this concomitant disease. Therefore, some preoperative differences and time related characteristics

might have affected the results of the study, but despite these limitations, the study proposes a novel approach to RMV surgical planning and can guide us in determining which patients would benefit the most from a repair. At the end of the day, this is all we want to know when treating RMV and this study is an important addition to the current knowledge on this topic. In conclusion, we congratulate with the authors for the nice study and the relevant work done in improving their decision-making process and therefore the indication for replacement: the benefits for the patients are already evident and an important lesson has been learned.

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